



LUMINAIRE TESTING LABORATORY, INC.

SUSTAINING
MEMBER
of the
IESNA

905 Harrison Street · Allentown, PA 18103 · 610-770-1044 · Fax 610-770-8912 · www.LuminaireTesting.com

LTL NUMBER: 16726 DATE: 09-25-2009
 PREPARED FOR: RENOVA LIGHTING SYSTEMS
 CATALOG NUMBER: ECS-NPW4-MN-132-UNV-11L
 LUMINAIRE: FORMED WHITE ENAMEL STEEL HOUSING, FORMED SPECULAR ALUMINUM REFLECTOR, CLEAR PRISMATIC PLASTIC LENS WITH LINEAR PRISMATIC SIDES.
 LAMP: ONE 32 WATT T8 LINEAR FLUORESCENT LAMP RATED AT 2850 LUMENS.
 LAMP CATALOG NUMBER: PHILIPS F32T8/TL841/ALTO
 BALLAST: ONE SYLVANIA "QUICKTRONIC" QHE1X32T8/UNV-ISL-SC
 MOUNTING: SURFACE
 ELECTRICAL VALUES: 120.0VAC, 0.2130A, 25.50W

Candela Distribution

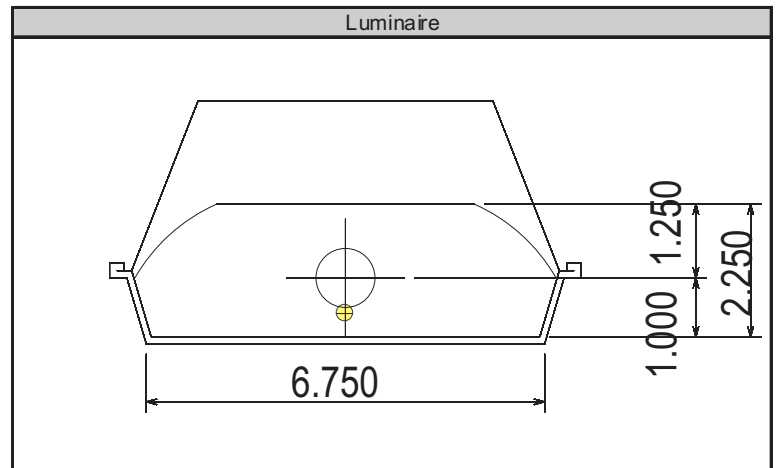
	0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5	Flux
0	641	641	641	641	641	641	641	641	641	641	641	641	641	641	641	641	
5	638	638	644	644	646	644	644	638	638	638	644	644	646	644	644	638	61.5
15	622	634	674	710	726	710	674	634	622	634	674	710	726	710	674	634	191.9
25	590	638	737	803	828	803	737	638	590	638	737	803	828	803	737	638	333.2
35	542	629	734	797	798	797	734	629	542	629	734	797	798	797	734	629	440.7
45	470	546	648	651	657	651	648	546	470	546	648	651	657	651	648	546	461.7
55	308	374	463	474	476	474	463	374	308	374	463	474	476	474	463	374	381.9
65	155	221	297	330	338	330	297	221	155	221	297	330	338	330	297	221	272.8
75	85	120	177	242	263	242	177	120	85	120	177	242	263	242	177	120	188.8
85	30	52	108	158	174	158	108	52	30	52	108	158	174	158	108	52	113.7
90	1	26	77	110	120	110	77	26	1	26	77	110	120	110	77	26	
95	0	20	57	83	93	83	57	20	0	20	57	83	93	83	57	20	57.2
105	3	14	36	52	58	52	36	14	3	14	36	52	58	52	36	14	34.7
115	3	5	25	36	41	36	25	5	3	5	25	36	41	36	25	5	22.3
125	5	5	16	28	31	28	16	5	5	5	16	28	31	28	16	5	14.9
135	5	5	8	17	21	17	8	5	5	5	8	17	21	17	8	5	8.3
145	5	5	8	8	9	8	8	5	5	5	8	8	9	8	8	5	4.4
155	5	5	5	8	8	8	5	5	5	5	5	8	8	8	5	5	2.9
165	5	5	6	6	5	6	6	5	5	5	6	6	5	6	6	5	1.5
175	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	0.5
180	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	

Zonal Lumen Summary

Zone	Lumens	% of Lamp	% of Luminaire
0-30	586.6	20.6%	22.6%
0-40	1027.3	36.0%	39.6%
0-60	1870.8	65.6%	72.2%
0-90	2446.2	85.8%	94.3%
90-180	146.6	5.1%	5.7%
0-180	2592.8	91.0%	100.0%

Total luminaire efficiency: 91.0%

CIE Type: Direct
 Spacing Criterion: 0 deg: 1.32 90 deg: 1.69
 180 deg: 1.32 270 deg: 1.69



Approved By: _____

THIS REPORT BASED ON LM-41 AND OTHER PERTINENT IESNA PROCEDURES.



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Candela Tabulation (5 degree Vertical Increments)

	0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5
0	641	641	641	641	641	641	641	641	641	641	641	641	641	641	641	641
5	638	638	644	644	646	644	644	638	638	638	644	644	646	644	644	638
10	632	635	652	664	670	664	652	635	632	635	652	664	670	664	652	635
15	622	634	674	710	726	710	674	634	622	634	674	710	726	710	674	634
20	608	635	706	765	788	765	706	635	608	635	706	765	788	765	706	635
25	590	638	737	803	828	803	737	638	590	638	737	803	828	803	737	638
30	569	638	746	817	838	817	746	638	569	638	746	817	838	817	746	638
35	542	629	734	797	798	797	734	629	542	629	734	797	798	797	734	629
40	510	599	706	728	721	728	706	599	510	599	706	728	721	728	706	599
45	470	546	648	651	657	651	648	546	470	546	648	651	657	651	648	546
50	407	466	561	566	575	566	561	466	407	466	561	566	575	566	561	466
55	308	374	463	474	476	474	463	374	308	374	463	474	476	474	463	374
60	214	290	373	393	395	393	373	290	214	290	373	393	395	393	373	290
65	155	221	297	330	338	330	297	221	155	221	297	330	338	330	297	221
70	116	164	229	279	293	279	229	164	116	164	229	279	293	279	229	164
75	85	120	177	242	263	242	177	120	85	120	177	242	263	242	177	120
80	60	82	139	203	226	203	139	82	60	82	139	203	226	203	139	82
85	30	52	108	158	174	158	108	52	30	52	108	158	174	158	108	52
90	1	26	77	110	120	110	77	26	1	26	77	110	120	110	77	26
95	0	20	57	83	93	83	57	20	0	20	57	83	93	83	57	20
100	2	16	43	62	69	62	43	16	2	16	43	62	69	62	43	16
105	3	14	36	52	58	52	36	14	3	14	36	52	58	52	36	14
110	3	10	29	43	48	43	29	10	3	10	29	43	48	43	29	10
115	3	5	25	36	41	36	25	5	3	5	25	36	41	36	25	5
120	4	4	21	31	35	31	21	4	4	4	21	31	35	31	21	4
125	5	5	16	28	31	28	16	5	5	5	16	28	31	28	16	5
130	5	6	11	23	27	23	11	6	5	6	11	23	27	23	11	6
135	5	5	8	17	21	17	8	5	5	5	8	17	21	17	8	5
140	5	5	7	10	14	10	7	5	5	5	7	10	14	10	7	5
145	5	5	8	8	9	8	8	5	5	5	8	8	9	8	8	5
150	5	5	7	8	9	8	7	5	5	5	7	8	9	8	7	5
155	5	5	5	8	8	8	5	5	5	5	5	8	8	8	5	5
160	5	5	5	5	6	5	5	5	5	5	5	5	6	5	5	5
165	5	5	6	6	5	6	6	5	5	5	6	6	5	6	6	5
170	5	5	5	6	5	6	5	5	5	5	5	6	5	6	5	5
175	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
180	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5

Zonal Lumen Tabulation (5 degree zones)

Zone	Lumens	Zone	Lumens	Zone	Lumens	Zone	Lumens
0-5	15.3	45-50	227.4	90-95	32.8	135-140	3.3
5-10	46.2	50-55	205.7	95-100	24.5	140-145	2.4
10-15	78.5	55-60	176.1	100-105	19.1	145-150	2.0
15-20	113.4	60-65	148.6	105-110	15.7	150-155	1.7
20-25	149.6	65-70	124.2	110-115	12.3	155-160	1.2
25-30	183.6	70-75	103.3	115-120	9.9	160-165	0.8
30-35	211.7	75-80	85.5	120-125	8.2	165-170	0.7
35-40	228.9	80-85	67.2	125-130	6.6	170-175	0.4
40-45	234.3	85-90	46.6	130-135	4.9	175-180	0.1



Coefficients of Utilization - Zonal Cavity Method												
Effective Floor Cavity Reflectance 20%												
Ceiling Cavity Reflectance	90				80				70			
Wall Reflectance	70	50	30	10	70	50	30	10	70	50	30	10
Room Cavity Ratio (RCR)												
0	1.103	1.103	1.103	1.103	1.071	1.071	1.071	1.071	1.04	1.04	1.04	1.04
1	1	0.947	0.9	0.858	0.967	0.92	0.877	0.839	0.937	0.894	0.855	0.82
2	0.908	0.82	0.749	0.69	0.877	0.798	0.732	0.677	0.848	0.776	0.716	0.665
3	0.827	0.717	0.634	0.568	0.797	0.698	0.621	0.559	0.77	0.679	0.608	0.551
4	0.755	0.633	0.544	0.477	0.729	0.616	0.534	0.471	0.703	0.601	0.524	0.465
5	0.693	0.563	0.473	0.408	0.669	0.549	0.465	0.403	0.645	0.535	0.457	0.398
6	0.638	0.504	0.416	0.353	0.616	0.492	0.409	0.349	0.595	0.481	0.403	0.346
7	0.59	0.455	0.369	0.309	0.57	0.444	0.363	0.306	0.551	0.435	0.358	0.303
8	0.548	0.413	0.33	0.274	0.529	0.404	0.325	0.271	0.512	0.395	0.321	0.269
9	0.51	0.377	0.297	0.244	0.493	0.369	0.293	0.242	0.477	0.362	0.289	0.24
10	0.476	0.346	0.27	0.219	0.461	0.339	0.266	0.218	0.447	0.333	0.263	0.216

Ceiling Cavity Reflectance	50				30			10			0
Wall Reflectance	70	50	30	10	50	30	10	50	30	10	0
Room Cavity Ratio (RCR)											
0	0.982	0.982	0.982	0.982	0.93	0.93	0.93	0.881	0.881	0.881	0.858
1	0.88	0.845	0.814	0.785	0.801	0.775	0.751	0.76	0.739	0.72	0.697
2	0.793	0.735	0.685	0.642	0.697	0.656	0.619	0.662	0.628	0.598	0.575
3	0.72	0.645	0.584	0.535	0.612	0.562	0.519	0.583	0.54	0.503	0.481
4	0.657	0.571	0.505	0.453	0.543	0.487	0.441	0.518	0.47	0.43	0.408
5	0.603	0.51	0.442	0.389	0.486	0.427	0.38	0.464	0.413	0.371	0.35
6	0.556	0.459	0.39	0.339	0.439	0.378	0.331	0.419	0.366	0.325	0.304
7	0.515	0.416	0.347	0.298	0.398	0.337	0.292	0.381	0.327	0.286	0.267
8	0.48	0.379	0.312	0.264	0.363	0.303	0.259	0.349	0.295	0.255	0.236
9	0.448	0.347	0.282	0.236	0.334	0.275	0.232	0.321	0.267	0.228	0.211
10	0.42	0.32	0.256	0.213	0.308	0.25	0.209	0.297	0.244	0.206	0.189

Average Luminance Table (cd/m²)

	0	45	90
0	2813	2813	2813
45	2916	3818	3733
55	2357	3236	3165
65	1610	2652	2817
75	1440	2280	3046
85	1490	2647	3501

THIS TEST WAS CONDUCTED USING RELATIVE PHOTOMETRY TECHNIQUES ACCORDING TO STANDARD IESNA PROCEDURES. THE USER MUST THEREFORE USE CAUTION IN THE FOLLOWING SITUATIONS: 1) THIS TEST WAS PERFORMED USING A SPECIFIC BALLAST/LAMP COMBINATION. EXTRAPOLATION OF THESE DATA FOR OTHER BALLAST/LAMP COMBINATIONS MAY PRODUCE ERRONEOUS RESULTS. 2) ACCORDING TO IESNA PROCEDURES, THE BALLAST(S) AND LAMP(S) ARE PRESUMED TO PRODUCE 100% OF RATED OUTPUT. AN APPROPRIATE BALLAST FACTOR MUST BE APPLIED TO THE LUMEN OUTPUT RATINGS AND LUMINOUS INTENSITY VALUES GIVEN. 3) THIS TEST WAS CONDUCTED IN A CONTROLLED LABORATORY ENVIRONMENT WHERE THE AMBIENT TEMPERATURE WAS HELD AT 25 °C ±1°C. FIELD PERFORMANCE MAY DIFFER PARTICULARLY IN REGARDS TO CHANGE IN LUMINOUS OUTPUT AS A RESULT OF DIFFERENCE IN AMBIENT TEMPERATURE AND METHOD OF MOUNTING THE LUMINAIRE.

